

**Remarks**

Claims 1-20 are currently pending in the patent application. For the reasons and arguments set forth below, Applicant respectfully submits that the claimed invention is allowable over the cited references.

The Office Action dated July 10, 2008 indicated the following rejections:

claims 1-2 stand rejected under 35 U.S.C. § 103(a) over the Smith reference (U.S. Patent No. 6,512,472) in view of Pakravan et al (U.S. Patent No. 6,259,391); claims 3-4 stand rejected under 35 U.S.C. § 103(a) over the Smith reference in view of the Pakravan reference, the Abbey reference (U. S. Patent No. 6,151,354) and the Van Bezooijen reference (U.S. Patent No. 7,233,631); claims 5-6 stand rejected under 35 U.S.C. § 103(a) over the Smith reference in view of the Pakravan reference and further in view of the Shi reference (U.S. Patent Pub. 2005/0079842); claims 7-9 stand rejected under 35 U.S.C. § 103(a) over the Smith reference in view of the Pakravan reference, the Shi reference and further in view of the Walker reference (U.S. Patent Pub. 2005/0208919); claim 10 stands rejected under 35 U.S.C. § 103(a) over the Takatz reference (U.S. Patent No. 7,046,749) in view of the Hughes '676 reference (U.S. Patent Pub. 2003/0207676) and the Shi reference; claim 11 stands rejected under 35 U.S.C. § 103(a) over the Takatz reference in view of the Hughes '676, Shi, Abbey and Van Bezooijen references; claim 12 stands rejected under 35 U.S.C. § 103(a) over the Takatz reference in view of the Shi and Walker references; claims 13-14 stand rejected under 35 U.S.C. § 103(a) over the Takatz reference in view of the Shi, Walker and Husted (U.S. Patent Pub. 2003/0012313) references; claims 15-17 and 20 stand rejected under 35 U.S.C. § 103(a) over the Shi reference in view of the Takatz reference and the Padovani reference (not identified); claim 18 stands rejected under 35 U.S.C. § 103(a) over the Shi reference in view of the Takatz reference and the Ciccarelli reference (U. S. Patent No 6,498,926); claim 19 stands rejected under 35 U.S.C. § 103(a) over the Shi reference in view of the Takatz, Ciccarelli and Hughes '674 (U.S. Patent Pub. 2003/0207,674) references. Applicant traverses all of the rejections and, unless explicitly stated by the Applicant, does not acquiesce to any objection, rejection or averment made in the Office Action.

Aspects of Applicant's invention relate to the ability to account for out-of-band frequencies that could otherwise cause loss of a transmitted signal. By detecting the total signal power received at the ADC, certain of Applicant's embodiments can help prevent signals from being lost. Respectfully, none of the asserted references provides such functionality. Notwithstanding, Applicant has amended claims to facilitate prosecution. Each of the claims explicitly recites that there is a comparison of the wide-band power estimate with a wide-band power threshold. Moreover, the wide-band power estimate is derived from a digital signal prior to the digital signal being digitally filtered (frequency selectivity) to decode data of the received signal. To assist in understanding of the present invention, reference can be made to the embodiments disclosed in connection with FIG. 4. As can be seen from FIG. 4, first measurements 402a and 402b are used to generate the wide-band power estimate 402c. These measurements are taken after the A/D conversion and prior to the digital filtering/frequency selectivity circuits and subsequent data processing. Advantageously, certain of Applicant's embodiments use a direct comparison of the wide-band power estimate to a wide-band power threshold level. None of the cited references alone or in combination teach comparing a wide-band power estimate with a wide-band power threshold.

To help understand the shortcomings of the rejections, the following argument has been largely separated into three different groupings. Together, these groupings form the basis for each of the rejections. While various dependent claims may include the addition of one or more references, these references do not cure the deficiencies of the underlying combination of elements. Respectfully, the lack of correspondence for specific dependent claims is moot due to the deficiencies of the rejections of the independent claims and may not be specifically addressed herein; however, Applicant submits that additional deficiencies are nevertheless present in this regard.

#### **Smith and Pakravan (the rejection of claims 1-9)**

The Office Action proposes a combination of references that is illogical as it would not perform the advantage that forms the reason behind the combination and further would undermine the purpose of the primary Smith reference. Accordingly, the rejections are improper. *See, e.g.*, M.P.E.P. 2143.01 "If proposed modification would

render the prior art invention being modified unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification... If the proposed modification or combination of the prior art would change the principle of operation of the prior art invention being modified, then the teachings of the references are not sufficient to render the claims *prima facie* obvious." See, also M.P.E.P. 2141, quoting KSR "[R]ejections on obviousness cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness." Respectfully, the reason articulated by the Office Action is illogical and does not satisfy a legal conclusion of obviousness.

The combination would not provide the asserted advantage of improving signal reception and would frustrate the purpose of the Smith reference. The Smith reference teaches a circuit that employs analog filtering (*i.e.*, bandstop filters 105, 906, 908 and 910). A binary search over the frequency range is used to identify problematic areas of the frequency band. This is accomplished, for example, by looking at specific portions of the frequency band to detect clipping and thereby determining "good" and "bad" portions of the frequency band. The analog filters are then adjusted to exclude the "bad" portions of the frequency band (*see, e.g.*, Smith at Col. 6, lines 4-45.) Thus, Smith prevents signal clipping by excluding undesirable portions of the frequency band. Oddly, the Office Action is attempting to add teachings from Pakravan to improve the signal by reducing clipping ("that the A/D converter could be provide better reception signal by avoiding input signal amplitude clipping" (Office Action at page 3)). Respectfully, the skilled artisan would recognize that Smith would not benefit from a modification by Pakravan that purports to avoid amplitude clipping because Smith already prevents amplitude clipping.

Moreover, adding the teachings of Pakarvan would appear to create worse signal reception because modifying the gain seen by the A/D converter would effectively mask the clipping by reducing the analog gain and thereby also reducing the received signal strength. Thus, Smith would no longer be capable of detecting "bad" portions of the frequency band because the clipping from the "bad" portions would be compensated for and hidden by the Pakravan-taught method of preventing amplitude clipping by reducing amplifier gain. That is to say, Smith identifies bad frequency regions by monitoring

clipping. The Office Action's purported combination would reduce the gain of the LNA to prevent such clippings, thereby defeating the purpose of the Smith reference by making detection of "bad" portions of the frequency spectrum more difficult or impossible.

Moreover, while the Office Action relies upon teachings from Pakravan to show correspondence to limitations directed toward the use of a total power estimation to prevent clipping, Pakravan does not compare an estimate of total power to a total power threshold level, which is part of the claim limitations. Pakravan applies the estimation of total power to a statistical model to determine the peak amplitude of the received signal and the clipping ratio (see Pakravan at col. 3, lines 35-46). The statistical modeling does not, therefore, serve to prevent the total signal power from exceeding a threshold amount. Indeed, Pakravan is concerned with a signal clipping ratio measured by a leaky integrator (Pakravan col. 6, lines 51-68). Pakravan teaches that the average power measurements, as relied upon by the Office Action, are modified by the peak to average ratio to determine the clipping ratio (Pakravan col. 8, lines 43-46). Accordingly, the combination of Smith and Pakravan does not teach correspondence to each claim limitation.

Accordingly the rejections that rely upon this combination of Smith and Pakravan are each improper (Applicant notes that none of the additional references cures this deficiency), and Applicant respectfully requests that the rejections of claims 1-9 be withdrawn.

#### **Takatz, Hughes and Shi (the rejection of claims 10-14)**

The Examiner mistakenly relies upon teachings from Takatz, Hughes and Shi to show correspondence to various claim limitations. The reliance is improper, in part, because Hughes explicitly teaches away from the asserted combination and also fails to correspond to each claim limitation.

Hughes teaches uses of a wide-band power estimate taken at a point prior to the A/D converter. Thus, the wide-band power estimate does not represent the power seen at the A/D converters. Instead, as shown by Fig. 1, output 112 is derived from a signal that is modified by analog base-band filters (BBF) 118 before reaching the A/D converters. Hughes specifically teaches that taking the measurement at this point is advantageous

(*see, e.g.*, paragraph 008) over taking measurements after the A/D converters. The circuit of Takatz does not even show such analog BBF. Respectfully, there has been no articulated reason why Hughes would suggest applicability of “wide band power estimation” in the circuit of Takatz, which lacks the BBF analog filters that Hughes teaches are critical to obtaining the benefit of the wide-band power estimation. As such, Hughes explicitly teaches away from Applicant’s claim limitations, which are directed to obtaining a power estimation of a digital signal at a point after the ADC. Accordingly, the rejections are improper for failing to show correspondence to each limitation and because Hughes teaches away from Applicant’s claim limitations.

Moreover, while Shi teaches wide-band and narrow-band RSSI measurements, these measurements are not performed in the digital domain. Indeed, the benefit of reducing intermodulation interference is taught to be obtained by maintaining the analog mixer 212 in the linear region (*see, e.g.*, Shi at paragraphs 20, 44, 49, 53 and 72). Accordingly, the skilled artisan would not look to implement these teachings in a digital environment that does not use such a mixer that is subject to non-linear responses.

The Office Action also erroneously relies upon logic that ostensibly categorizes all types of interference as equivalent. This approach is contrary to the requirements of § 103 and relevant law. *See, e.g., KSR Int'l Co. v. Teleflex Inc.*, 127 S. Ct. 1727, 1741 (U.S. 2007)

Although common sense directs one to look with care at a patent application that claims as innovation the combination of two known devices according to their established functions, it can be important to identify a reason that would have prompted a person of ordinary skill in the relevant field to combine the elements in the way the claimed new invention does. This is so because inventions in most, if not all, instances rely upon building blocks long since uncovered, and claimed discoveries almost of necessity will be combinations of what, in some sense, is already known.

The Office Action has erroneously asserted that one of skill in the art would modify the Takatz reference with the cited portions of the Shi reference in order that the receiver could avoid the intermodulation interference. However, the Office Action fails to establish that the Takatz reference suffers from intermodulation interference. The Office Action again confuses clipping effects and any interference that may occur therefrom with intermodulation interference. The Office Action apparently is of the opinion that all types of

interference are the same. Respectfully, intermodulation interference is a specific type of interference that is distinguishable from interference from clipping effects. Thus, the skilled artisan would not look to teachings specifically designed for intermodulation interference occurring in a mixer to fix harmonic interference from clipping effects.

Accordingly, the rejections based upon Takatz, Hughes and Shi are improper. Applicant respectfully requests that the rejections of claims 10-14 be withdrawn.

**Shi, Takatz and Padovani (the rejection of claims 15-20)**

Respectfully, Applicant is unable to identify the Padovani reference (page 13 of Office Action). The reference is not identified other than as "Padovani." Moreover, Applicant was unable to find the Padovani reference in the Notice of References cited. Accordingly, Applicant respectfully requests reconsideration and clarification before a final office action is issued.

Notwithstanding, Shi's estimation of wide-band and narrow-band is accomplished in the analog realm for the purpose of maintaining analog mixer 212 in the linear region (*see, e.g.*, Shi at paragraphs 20, 44, 49, 53 and 72). Accordingly, merely adding a base-band processor from Takatz would not show correspondence to measuring a digital signal between the analog-to-digital converter and the selectivity circuitry.

Accordingly, the rejections that rely upon Shi modified in view of Takatz (and Padovani) are improper. Applicant respectfully requests that the rejection of claims 15-20 be removed.

Applicant further notes that many of the limitations of the dependent claims are merely recitation of elements from various references without fully considering how the elements are arranged in the claims. As an example, claim 17 is directed to taking the wide-band signal power estimate from an intermediate point in the decimation and filtering processing chain. Respectfully, the Office Action has not addressed the arrangement of elements, which requires that the wide-band signal power estimate be obtained from within the decimation and filtering processing chain. Shi teaches that the wide-band signal power is to be obtained in the analog realm prior to any ADC. Merely adding a specific type of ADC into the circuit would not change this aspect of the Shi

reference. Accordingly, the rejection of claim 17 is further improper and should be withdrawn.

In view of the remarks above, Applicant believes that each of the rejections has been overcome and the application is in condition for allowance. Should there be any remaining issues that could be readily addressed over the telephone, the Examiner is asked to contact the agent overseeing the application file, Peter Zawilski, of NXP Corporation at (408) 474-9063 (or the undersigned).

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